

## CLAIMS

1. An image heating apparatus comprising:

an annular heat-producing member that has a pair  
5 of principal surfaces and produces heat through the action  
of magnetic flux;

a magnetic flux generation section that is located  
in proximity to a first principal surface of said pair  
of principal surfaces and generates magnetic flux that  
10 acts upon said heat-producing member; and

a magnetic flux reduction section that is located  
in proximity to a second principal surface of said pair  
of principal surfaces and reduces, of magnetic flux  
generated by said magnetic flux generation section,  
15 magnetic flux that acts upon a paper non-passage area  
of said heat-producing member.

2. The image heating apparatus according to claim 1,  
wherein said magnetic flux reduction section is attached  
20 to a rotatable core and is displaced between a facing  
position with respect to said second principal surface  
and a non-facing position with respect to said second  
principal surface by rotating said core.

25 3. The image heating apparatus according to claim 2,  
wherein:

said core has a recess formed in an outer peripheral  
surface thereof; and

said magnetic flux reduction section is attached by being inserted in said recess.

4. The image heating apparatus according to claim 2,  
5 wherein said magnetic flux reduction section is attached to said core so that an outer peripheral surface thereof is located on a circumferential surface the same as an outer peripheral surface of said core.

10 5. The image heating apparatus according to claim 2, wherein said magnetic flux reduction section has a projection formed on a peripheral-direction end thereof.

6. The image heating apparatus according to claim 2,  
15 wherein said magnetic flux reduction section is displaced to said non-facing position at warm-up time.

7. The image heating apparatus according to claim 2,  
wherein said magnetic flux reduction section is first  
20 displaced to said non-facing position and thereafter displaced to said facing position when sheets narrower than a maximum-width paper passage range are passed through continuously.

25 8. The image heating apparatus according to claim 2, wherein said core has thermal conductivity of a predetermined level or above.

9. An image forming apparatus that has the image heating apparatus according to claim 1.

10. An image heating apparatus comprising:

5 an induction-heated thin heat-producing member that transfers heat directly or indirectly to a heated medium that moves with an image;

an excitation section that generates magnetic flux and induction-heats said heat-producing member;

10 a temperature control section that controls said excitation section and makes a temperature of a contact surface that comes into contact with said heated medium a predetermined temperature; and

a heat production adjustment section that is located  
15 on an opposite side of said heat-producing member relative to said excitation section, and adjusts heat production distribution of said heat-producing member by adjusting magnetic flux acting upon said heat-producing member;

wherein said heat production adjustment section has  
20 an opposed core of ferromagnetic material whose temperature varies according to a temperature of said heat-producing member and whose Curie point is in a range of  $-10^{\circ}\text{C}$  to  $+100^{\circ}\text{C}$  relative to a maximum value of said predetermined temperature.

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11. An image heating apparatus comprising:

an induction-heated thin heat-producing member that  
transfers heat directly or indirectly to a heated medium

that moves with an image;

an excitation section that generates magnetic flux and induction-heats said heat-producing member;

a temperature control section that controls said  
5 excitation section and makes a temperature of a fixing surface that comes into contact with said heated medium a predetermined temperature; and

a heat production adjustment section that is located on an opposite side of said heat-producing member relative  
10 to said excitation section, and adjusts heat production distribution of said heat-producing member by adjusting magnetic flux acting upon said heat-producing member;

wherein said heat production adjustment section has an opposed core of ferromagnetic material whose  
15 temperature varies according to a temperature of said heat-producing member and whose Curie point is in a range of 140°C to 250°C.

12. The image heating apparatus according to claim 10  
20 or claim 11, wherein said heat production adjustment section comes into contact with said heat-producing member or a member heated by said heat-producing member.

13. An image heating apparatus comprising:  
25 an induction-heated thin heat-producing member that transfers heat directly or indirectly to a heated medium that moves with an image;

an excitation section that generates magnetic flux

and induction-heats said heat-producing member;

a temperature control section that controls said  
excitation section and makes a temperature of a fixing  
surface that comes into contact with said heated medium  
5 a predetermined temperature; and

a heat production adjustment section that is located  
on an opposite side of said heat-producing member relative  
to said excitation section, and adjusts heat production  
distribution of said heat-producing member by adjusting  
10 magnetic flux acting upon said heat-producing member;

wherein said heat production adjustment section has  
a switching section that performs on/off switching of  
a suppression coil composed of an electrical conductor  
that is linked to said magnetic flux.

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14. The image heating apparatus according to claim 13,  
wherein an opposed core of high-permeability material  
that is permeated by magnetic flux linked to said  
suppression coil is located inside said suppression coil  
20 or on an opposite side of said heat-producing member  
relative to said suppression coil.

15. An image heating apparatus comprising:

an induction-heated thin, cylindrical  
25 heat-producing member that transfers heat directly or  
indirectly to a heated medium that moves with an image;  
an excitation section that faces an outer peripheral  
surface of said heat-producing member, generates magnetic

flux, and induction-heats said heat-producing member;

a temperature control section that controls said excitation section and makes a temperature of a fixing surface that comes into contact with said heated medium

5 a predetermined temperature; and

a heat production adjustment section that is located on an opposite side of said heat-producing member relative to said excitation section, and adjusts heat production distribution of said heat-producing member by adjusting magnetic flux acting upon said heat-producing member;

wherein said heat production adjustment section has a rotatable opposed core of ferromagnetic material whose cross-sectional shape varies in an axial direction of said heat-producing member.

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16. The image heating apparatus according to claim 15, wherein a distance between said heat-producing member and said opposed core is fixed in an axial direction in at least one part of a circumferential direction of said opposed core.

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17. The image heating apparatus according to claim 15, wherein heat production distribution whereby intensity of heat production distribution adjusted by said opposed core is reversed by rotation of said opposed core is possible.

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18. The image heating apparatus according to claim 15,

wherein said opposed core is formed by combining a plurality of materials of different permeability in at least one part of an axial direction of said heat-producing member.

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19. The image heating apparatus according to claim 18, wherein said opposed core is formed by combining at least a ferromagnetic material and a low-permeability electrical conductor.

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20. The image heating apparatus according to claim 15, wherein a cross-sectional shape of said opposed core varies continuously in an axial direction in at least one part of an axial direction of said heat-producing member.

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21. An image heating apparatus comprising:

an induction-heated thin, cylindrical heat-producing member that transfers heat directly or indirectly to a heated medium that moves with an image;  
an excitation section that faces an outer peripheral surface of said heat-producing member, generates magnetic flux, and induction-heats said heat-producing member;  
a temperature control section that controls said excitation section and makes a temperature of a fixing surface that comes into contact with said heated medium a predetermined temperature; and  
a heat production adjustment section that is located

on an opposite side of said heat-producing member relative to said excitation section, and adjusts heat production distribution of said heat-producing member by adjusting magnetic flux acting upon said heat-producing member;

5        wherein said heat production adjustment section has a rotatable opposed core which consists of divided ferromagnetic materials and has a cross-sectional shape varying in an axial direction of said heat-producing member.

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22.    The image heating apparatus according to claim 21, wherein said opposed core is formed by combining a plurality of materials of different permeability in at least one part of an axial direction of said heat-producing member.

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23.    The image heating apparatus according to claim 21, wherein said opposed core is formed by combining at least a ferromagnetic material and a low-permeability electrical conductor.

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24.    The image heating apparatus according to claim 21, wherein a cross-sectional shape of said opposed core varies continuously in an axial direction in at least one part of an axial direction of said heat-producing member.

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25.    An image heating apparatus comprising:



an induction-heated thin, cylindrical  
heat-producing member that transfers heat directly or  
indirectly to a heated medium that moves with an image;

an excitation section that generates magnetic flux  
5 and induction-heats said heat-producing member;

a temperature control section that controls said  
excitation section and makes a temperature of a fixing  
surface that comes into contact with said heated medium  
a predetermined temperature; and

10 a heat production adjustment section that is located  
on an opposite side of said heat-producing member relative  
to said excitation section, and adjusts heat production  
distribution of said heat-producing member by adjusting  
magnetic flux acting upon said heat-producing member;

15 wherein said heat production adjustment section has  
a movable magnetic flux suppression member of  
low-resistivity material.

26. The image heating apparatus according to claim 25,  
20 wherein in said heat production adjustment section said  
magnetic flux suppression member is attached to an opposed  
core of ferromagnetic material.

27. An image heating apparatus comprising:

25 an induction-heated thin heat-producing member that  
transfers heat directly or indirectly to a heated medium  
that moves with an image;

an excitation section that generates magnetic flux

and induction-heats said heat-producing member;

a temperature control section that controls said  
excitation section and makes a temperature of a contact  
surface that comes into contact with said heated medium  
5 a predetermined temperature; and

a heat production adjustment section that is located  
on an opposite side of said heat-producing member relative  
to said excitation section, and adjusts heat production  
distribution of said heat-producing member by adjusting  
10 magnetic flux acting upon said heat-producing member;

wherein said heat production adjustment section has  
an opposed core of ferromagnetic material, and a Curie  
point of said opposed core is set higher than a temperature  
of said opposed core in a paper passage area and lower  
15 than a temperature of said opposed core in a paper  
non-passage area.

28. An image heating apparatus comprising:

an induction-heated thin heat-producing member that  
20 transfers heat directly or indirectly to a heated medium  
that moves with an image;

an excitation section that generates magnetic flux  
and induction-heats said heat-producing member;

a temperature control section that controls said  
25 excitation section and makes a temperature of a contact  
surface that comes into contact with said heated medium  
a predetermined temperature; and

an opposed core of ferromagnetic material that is

located on an opposite side of said heat-producing member relative to said excitation section, and adjusts heat production distribution of said heat-producing member by adjusting magnetic flux acting upon said

5 heat-producing member;

wherein a distance between said heat-producing member and said opposed core is set constant in an area facing said exciting section.

10 29. An image heating apparatus comprising:

an induction-heated thin heat-producing member that transfers heat directly or indirectly to a heated medium that moves with an image;

an excitation section that generates magnetic flux  
15 and induction-heats said heat-producing member;

a temperature control section that controls said excitation section and makes a temperature of a contact surface that comes into contact with said heated medium a predetermined temperature; and

20 an opposed core of ferromagnetic material that is located on an opposite side of said heat-producing member relative to said excitation section, and adjusts heat production distribution of said heat-producing member by adjusting magnetic flux acting upon said

25 heat-producing member;

wherein a distance between said heat-producing member and said opposed core in a paper non-passage area is set greater than a distance between said heat-producing

member and said opposed core in a paper passage area.

30. An image forming apparatus comprising:

the image heating apparatus of any one of claim 10  
5 through claim 29; and

a temperature sensor that measures a temperature  
of a paper non-passage area of said heat-producing member;

wherein a heat production adjustment section  
adjusts heat production distribution of said  
10 heat-producing member based on a signal from said  
temperature sensor.